

Fractal Behaviour of Earthquake Sequences in Himalaya

Authors : Kamal, Adil Ahmad

Abstract : Earthquakes are among the most versatile natural and dynamic processes, and hence a fractal model is considered to be the best representative of the same. We present a novel method to process and analyse information hidden in earthquake sequences using Fractal Dimensions and Iterative Function Systems (IFS). Spatial and temporal variations in the fractal dimensions of seismicity observed around the Indian peninsula in last 30 years are studied. This was used as a possible precursor before large earthquakes in the region. IFS images for observed seismicity in the Himalayan belt were also obtained. We scan the whole data set and coarse grain of a selected window to reduce it to four bins. A critical analysis of four-cornered chaos-game clearly shows that the spatial variation in earthquake occurrences in Himalayan range is not random. Two subzones of Himalaya have a tendency to follow each other in time.

Keywords : earthquakes, fractals, Himalaya, iterated function systems

Conference Title : ICAMEM 2018 : International Conference on Applied Mathematics and Engineering Mathematics

Conference Location : Toronto, Canada

Conference Dates : June 21-22, 2018